**EP27.05. Shearwave velocity changes in the lungs, liver and placenta during physiologic pregnancy**

M. Brestak¹, ² A. Zdenkova¹, B. Kubesova¹, P. Simjak¹, P. Calda¹ Fetal Medicine Center, Department of Obstetrics and Gynaecology, First Faculty of Medicine, Charles University and General University Hospital¹, Prenatal Diagnostic and Screening Center, ProfiG2, Prague, Czechia ²

**Objectives** The aim of this pilot study was to obtain normal shear wave velocity (SWV) values of fetal lungs, liver and placenta during physiologic pregnancy.

**Methods** 63 singleton low-risk pregnancies without any known pathologic states were prospectively evaluated in 20-4, 25-29, 30-34 and >35 weeks of gestation. Siemens Acuson S2000 premium system with the 1.5 – 6.0 MHz 6C1 probe was used by 3 skilled sonographers, after a set of 10 pilot measurements each and their evaluation. The sample volume was placed over the organ of interest (lungs, liver, placenta) in a place of homogenous echogenicity. Regions with acoustic shadowing or artifacts of adjacent structures were avoided, especially fetal ribs or content of the maternal intestine. 6 consecutive measurements in each organ were provided. The insonation angle and probe placement were different for each measurement. The SWV was measured in the left and right lung and both lobes of the liver in each participant. All measurements were recorded and used for calculations. The study was approved by the hospital ethics committee.

**Results** The SWV in placental and liver parenchyma were all statistically significantly higher in the third trimester than in the second trimester, while the velocities in lungs did not differ between the second and the third trimester. (Fig. 1) Inter and intraobserver agreement of the SWV measurements was good.

**Conclusion** Shear wave elastography provides numerical values of fetal lung and liver stiffness and reflects gestational age-related changes in these organs. SWV in the liver and placenta might reflect not only changes in different gestational weeks in physiologic pregnancies, but further studies might be necessary to show if there are different SWV in fetuses with intrauterine restriction or other fetal pathologies.

**Shear wave velocity values (MoMs) in the right lung (Fig. 1), liver (Fig. 2) and placenta (Fig. 3) in the 20-24, 25-29, 30-34 and >35 weeks of gestation**